CHEROKEE NATION

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Chad "Corntassel" Smith
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Deputy Principal Chief

September 25, 2006

Aunjanee Gautreaux, 6PD-Q
Air Quality Analysis Section
U. S. EPA, Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

RE: CHEROKEE NATION COMMUNITY AIR TOXICS PROJECT FIRST QUARTER TECHNICAL REPORT

Dear Ms. Gautreaux:
Enclosed is the First Quarter Technical Report (June, July, August, 2006) for the Cherokee Nation's Community Air Toxics Project (Cooperative Agreement number XA-96619701-0). The first quarter financial report and MBE/WBE will be provided by the Cherokee Nation Accounting Department and by our budget analyst, respectively.

If you have any questions regarding these matters, please call Ryan Callison at 918-453-5093 or Kent Curtis at 918-453-5095.

Sincerely,

Jeannine Hale

Jeannine Hale
Administrator for Environmental Programs

Enclosure

cc: File

QUARTERLY TECHNICAL REPORT
for
CHEROKEE NATION ENVIRONMENTAL PROGRAMS (CNEP)
COMMUNITY AIR TOXICS PROJECT
(XA-96619701-0)

FIRST QUARTER FY2006
(JUNE, JULY, AUGUST, 2006)

OVERVIEW OF PROJECT ORIGIN AND PURPOSE

A 9000-acre industrial park is located in Mayes County, Oklahoma, which is 40 miles east from Tulsa and 30 miles north of Muskogee. Over 70 firms operate within the industrial park, including a coal-fired power plant, a new gas-fired power plant, chemical and plastic industries, paper product industries, and several other industries that emit hazardous air pollutants.

All major point sources in Mayes County are spatially clustered near the industrial park, as are the tribal population centers of Pryor, Chouteau, Locust Grove, Salina, Sportsman Acres, and Cherokee Heights. Cherokee Heights is less than one mile from some sections of the industrial park. The Cherokee Nation has established an ambient air monitoring site on Tribal Trust land at the Cherokee Heights housing complex (**Figure 1**). This monitoring site includes instruments for monitoring criteria pollutants, VOCs, and meteorological parameters.

The proximity of the Cherokee Heights tribal housing complex to the industrial park, coupled with the high incidence of respiratory cancer in Mayes County, prompted the Cherokee Nation to conduct a VOC screening project at its Cherokee Heights monitoring station during the winter of 2005 (December 23, 2004 to March 29, 2005). Fifteen samples were collected in vacuum canisters and analyzed via GC/MS in accordance with EPA Test Method TO-15. The sampling interval was 1-in-6 days and each sample was a 24-hour time-weighted average sample. The results of the screening project were as follows: (1) 24 of 59 VOCs were detected in one or more samples; (2) 15 of the 24 detected VOCs were hazardous air pollutants (HAPs); (3) only 5 detected VOCs (HAPs) exceeded an EPA health-based benchmark in one or more samples, **but 4 of these 5 VOCs are respiratory carcinogens (benzene, MTBE, methylene chloride, TCE)**. Thus the data for this short-term screening project revealed a potential problem with VOC air toxics in the Cherokee Heights area.

The Cherokee Nation is currently conducting an 18-month VOC sampling project at its Cherokee Heights site, collecting samples in vacuum canisters for analyses via EPA Test Method TO-15. Over 90 samples will be collected using a 1-in-6 day sampling interval. The 18-month project will document seasonal variations in VOC concentrations and will focus on hazardous air pollutants (VOC HAPs) identified as "drivers" in the 1999 NATA, as well as on VOC HAPs detected in the Cherokee Nation's screening project from the

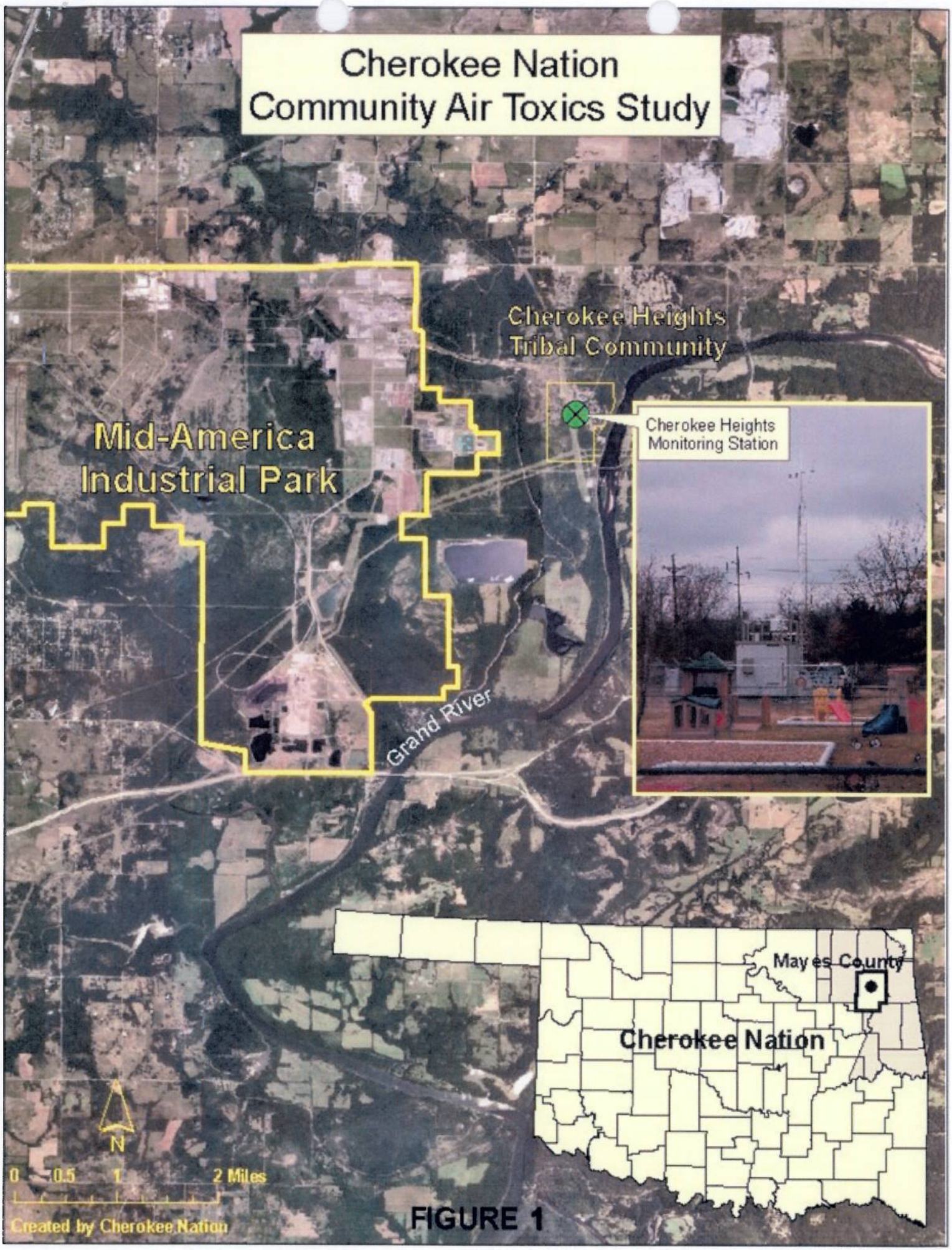

Cherokee Nation
Community Air Toxics Study
Cherokee Heights
Tribal Community
Cherokee Heights
Monitoring Station
Mid-America
Industrial Park
Grand River
Mayes County
Cherokee Nation
N
0 0.5 1 2 Miles
Created by Cherokee Nation

FIGURE 1

winter of 2005. Project data will be shared with the EPA, the state of Oklahoma (ODEQ), the Cherokee Nation, and the general public via AQS, XML flat file, and other means, as appropriate.

FIRST QUARTER GOALS, OBJECTIVES, AND ACCOMPLISHMENTS

1. **Receive EPA Award and Initiate Project.** The Cherokee Nation (CNEP) received the EPA award letter for this Community Air Toxics Project during the first week of June, 2006. The award amount is $165,000 for a two-year (24-month) project. The CNEP set up internal budgets for this project immediately after receipt of the award letter.

2. **Approval of Quality Assurance Project Plan (QAPP) and Work Plan for this Project.** The CNEP was proactive in meeting this goal, preparing and submitting a QAPP/Work Plan to the EPA Region 6 Air Quality Analysis Section in November, 2005 (in anticipation of EPA's award of funding to the CNEP for this project). This QAPP/Work Plan was approved by Donna Ascenzi of EPA Region 6 on February 9, 2006.

3. **Preparation of Sampling Equipment for this Project.** The primary RM910A sampler that will be used in this project was also used by the CNEP for its VOC screening project in 2004-2005. After the conclusion of the screening project the CNEP sent its primary sampler to Eastern Research Group, Inc. (ERG) for an EPA Compendium Method TO-15 "canister sampling system certification" (aka, NATTS Certification). The purpose of this certification was to quantify the potential for the primary sampler to cause positive or negative bias in VOC concentrations in air samples. ERG performed this certification on the CNEP's primary sampler in December, 2005 and found that the sampler exhibited minimal potential for biasing.

On July 12, 2006 the CNEP performed a flow verification check on its primary RM910A sampler in accordance with Section 8.3.5 of EPA's *Compendium Method TO-15*. A primary standard (Hastings HBM-1A bubble meter) was used for this flow verification check and the flow rate of the primary sampler was found to be within acceptable limits (±10%) of the flow rate measured by the primary standard. The primary RM910A sampler was installed and put in service at the CNEP's Pryor site the next day.

The CNEP ordered a used (refurbished and fully warrantied for $4792) RM910A sampler in August, 2006. This refurbished sampler will serve as a backup sampler that can be put into service immediately if the primary sampler should fail and need to be sent to the manufacturer for repairs. By using the backup sampler in such an emergency, few, if any, sample collection dates will be missed during this project. The CNEP should receive the backup sampler in late September, 2006. The CNEP will send the backup sampler to ERG in October, 2006 for an EPA Method TO-15 certification, after which the CNEP will perform a flow check on it. The backup sampler will then be ready for service at the Pryor site if necessary.

4. Practice Sample Collection Procedures, Development of Standard Operating Procedures (SOPs), and Training CNEP Staff to Perform Sample Collection Procedures, Equipment Maintenance, and QA/QC Functions. The CNEP installed its primary RM910A sampler at its air quality monitoring station at Pryor (Cherokee Heights) on July 13, 2006 and confirmed that the sampler was working properly.

During the next two months (July 18 to September 14, 2006) the CNEP practiced sample collection procedures using the primary RM910A and two Graseby 6-liter vacuum canisters. The sample collection procedure was practiced twelve times using both single and duplicate canister setups. As a result of the practice runs, the CNEP determined the correct flow rate setting for the RM910A (necessary to ensure that a canister had a negative pressure at the conclusion of sample collection) and developed or modified the standard operating procedures (SOPs) to be used for sample collection and other tasks during this project. These written SOPs were included in the revised QAPP/Work Plan for this project (see objective 8 below). The practice runs also enabled all CNEP air program staff to become familiar with the sample collection and documentation procedures to be used for this project.

Received 9/27/06

Preparation of sampling equipment (described in objective 3 above) enabled CNEP air program staff to become familiar with equipment maintenance and QA/QC procedures necessary for this project.

5. Solicit Bids from Labs and Select Lab to Perform Sample Analyses and Data Reporting. The Cherokee Nation solicited competitive bids from laboratories to perform sample analyses and data reporting for this project. Bids were solicited at the end of June, 2006 and three labs submitted bids in mid-August, 2006. Eastern Research Group, Inc. (ERG) was selected by the CNEP on August 24, 2006 as the winning bidder.

The contract between the Cherokee Nation and ERG was completed and signed on September 14, 2006. The total amount of this contract is for $47,520 and the contract duration is through June 30, 2008. Under terms of this contract, ERG will clean and prepare the CNEP's sample canisters for sample collection, analyze approximately 102 samples collected for this project via EPA Method TO-15, submit sample data reports to the CNEP, and enter sample data for the project into the EPA's AQS database. The cost for all these services is $396 per sample.

6. Coordinate with Selected Lab in Preparation for Sample Collection. Following selection of ERG as the winning bidder, CNEP staff conferred with ERG staff to coordinate preparations for the commencement of sample collection. Logistics for sample shipment were discussed, as were procedures and requirements for sample collection and sample documentation. Procedures and QA/QC requirements were agreed upon and documented in e-mail messages and/or written CNEP SOPs.

7. Develop Proposed Sampling Schedule for this Project. The CNEP developed the Proposed Sampling Schedule for this project on July 27, 2006. This sampling schedule is included in this Quarterly Technical Report as **Appendix A.** Sample collection begins on

September 26, 2006 and ends on March 25, 2008. Samples will be collected on EPA's 1-in-6 day schedule for ambient particulate monitoring. Ten duplicate samples will be collected. Dates for duplicate sample collection were selected by means of a random number table.

Reviewing now... Received 9/27/06

8. Revise the Approved Project QAPP/Work Plan to Include the Newly Developed SOPs and the Proposed Sampling Schedule. The CNEP began revising the approved QAPP/Work Plan for this project in July, 2006. The revised QAPP was completed in September, 2006 and sent to EPA Region 6 for approval. The revised QAPP includes the SOPs and proposed sampling schedule developed for this project, information and procedures (including QA/QC requirements, such as the method detection limits for the VOCs to be analyzed) pertaining to sample analyses by ERG, and changes in CNEP staff participating in this project.

✓ **9. Meet with EPA Region 6 to Discuss Project.** Ryan Callison, April Hathcoat, Kent Curtis, and Randy Gee of the CNEP met with Bill Nally, Aunjanee Gautreaux, and Elizabeth Braziel of the EPA Region 6 office in Dallas on June 15, 2006 to discuss this project. Project goals, budgets, and preparations were discussed to ensure understanding and agreement between the CNEP and the EPA.

✓ **Summary of First Quarter Goals, Objectives, and Accomplishments.** The goals and objectives of this project, including overall goals, have not changed from the original CNEP application for funding. First quarter goals and objectives for this project were to complete all preparations necessary for the commencement of sample collection. These goals and objectives have been met. No significant difficulties or delays were encountered in meeting these first quarter goals and objectives. In summary, work for this project is on schedule and sample collection is set to begin on September 26, 2006.

Project Timeline and Milestones. The following list shows the timeline and milestones for the entire two-year duration of this project. *Milestones that have been met are shown in italics.*

✓ *(1)* Cherokee Nation will receive EPA approval of its QAPP for this project by June 1, 2006, or by the end of the second month of the project. *The original QAPP/Work Plan for this project was approved by the EPA in February, 2006.*

✓ *(2)* Cherokee Nation will solicit bids from labs for sample analysis during the first month of the project and will select the winning bid and award the contract by the beginning of the third month of the project. *ERG was selected (August, 2006) to analyze project samples and perform data reporting for the project.* (Contract awarded 9/14/06)

✓ (3) Cherokee Nation will begin sample collection by the beginning of the third month (September, 2006) of the project, or by the date of project QAPP approval by EPA, whichever is later. → waiting for revision approval for QAPP...

(4) Cherokee Nation will begin data analysis as soon as the first data is received from lab. Data analysis will continue to the end of the project on May 31, 2008. (No activity)

(5) Cherokee Nation will complete sample collection by the end of 18 months of sampling (March, 2008). (No Activity)

(6) ERG will submit sample data to CNEP within 45 days after the end of each month of sample collection. ERG will submit statistical analyses of data and quality assurance reports to CNEP at the end of each year of the project. (No Activity)

(7) ERG, under the terms of its contract with CNEP, will post project data to AQS within 90 days of the end of each calendar quarter. Posting of project data to AQS will begin as early as the 9th month (March, 2006) of the project. ERG will complete final posting of project data to AQS within 90 days after the conclusion of the project on May 31, 2008. (No Activity)

(8) Cherokee Nation will host public meeting to present results of project to residents of Cherokee Heights no later than the final month of the project (May, 2008). (No Activity)

(9) Cherokee Nation will submit final project report to EPA within 90 days after the conclusion of the project on May 31, 2008. Quarterly technical reports will be submitted to EPA within 30 days after the end of each three-month quarter of each fiscal year. (No Activity)

CHANGES IN KEY PERSONNEL INVOLVED IN PROJECT

The following seven persons in the CNEP air quality monitoring program will work on this project:

Ryan Callison, Project Manager
Kent Curtis, Project QA/QC Manager
April Hathcoat, Environmental Specialist II
Jacque Adam, Environmental Specialist I
Jeremy Freise, Environmental Specialist I
Amber McCurtain, Environmental Specialist I
Danielle Keese, Environmental Technician

Ryan has overall responsibility for the project. Kent is responsible for project planning, project oversight, and QA/QC management. Kent and April are responsible for project data management. April, Jacque, Jeremy, Amber, and Danielle have primary responsibility for sample collection and equipment maintenance, while Kent and Ryan may also assist with such tasks. Amber and Danielle began working for the CNEP in August and September, 2006. Jack Butler left the CNEP in July, 2006. These changes in CNEP personnel have not had a significant impact on the project, as the new personnel have been trained to perform project tasks.

ERG is the laboratory responsible for sample analyses and data reporting for the project. Key contacts at ERG are Julie Swift (project oversight), Ray Merrill (QA oversight),

Dave Dayton (Method TO-15 canister sampling system certification), and Rodney Williams (canister sample shipping and receiving).

Figure 2 is an organizational chart showing all parties involved in this project. Those personnel named in the preceding paragraphs are directly involved in this project while other parties shown in **Figure 2** play supporting roles in the project.

EXPENDITURES TO DATE

A total of $56,610 of the $165,000 awarded for this grant was spent or obligated by the CNEP during the first quarter of this project. Most of the money spent or obligated was for one-time expenditures: $47,520 obligated to ERG for the performance of sample analyses and data reporting during the period from September, 2006 through May, 2008; and $4,522 obligated to RM Environmental, Inc. for a backup RM910A sampler and spare parts (seals, etc.) for the primary RM910A sampler. The remaining expenditures during the first quarter were $2,624 for salaries, $1,258 for fringe benefits, and $685 for indirect costs. Thus first quarter expenditures and obligations are within the overall budget for the project. In other words, expenditures for salaries, fringe benefits, indirect costs, and other expenses are not expected to exceed the total awarded for the two-year life of the grant.

COMPLIANCE WITH QUALITY ASSURANCE REQUIREMENTS

The CNEP's QAPP/Work Plan for this project was approved by the EPA in February, 2006. Thus all work performed on this project by the CNEP during the first quarter is covered by this EPA-approved QAPP. A revision of this QAPP was completed by the CNEP in September, 2006 and is being submitted to the EPA for approval. [See goals 2 and 8 in the "First Quarter Goals, Objectives, and Accomplishments" section above for more information.]

In addition, the CNEP is operating under a Quality Management Plan (QMP) approved by the EPA on May 30, 2006. The CNEP air quality monitoring program is also operating under several other EPA-approved QAPPs, including QAPPs for criteria pollutant monitoring (including meteorological instruments) and for PM2.5 and PM10 monitoring.

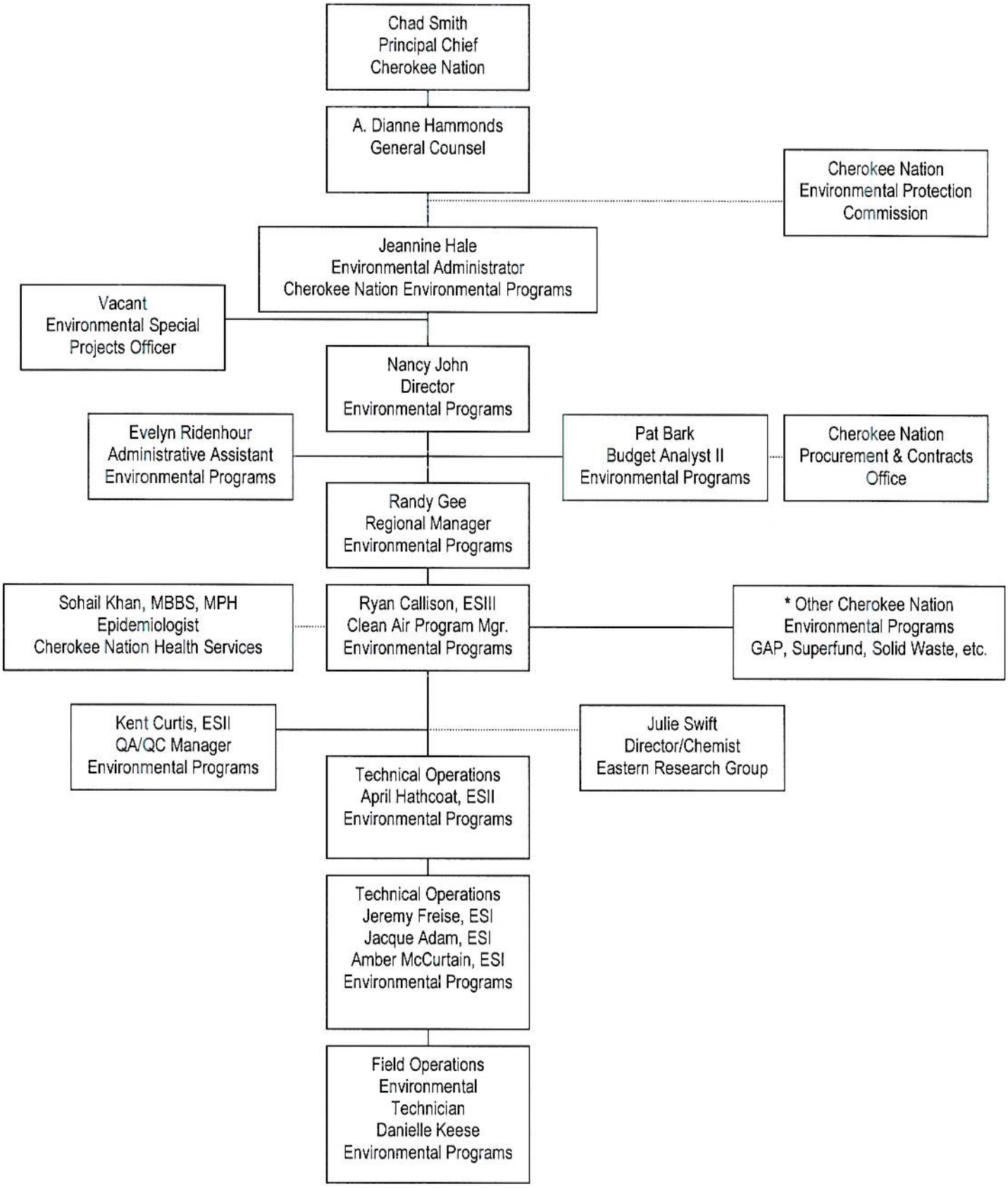
The contracted laboratory, ERG, is operating under the following EPA-approved QAPP: *Support for the EPA National Monitoring Programs (NMOC, UATMP, PAMS, HAPs, and NATTS)*. EPA approval for ERG's updated QAPP for 2006/2007 is pending. – Received QAPP revisions 9/27/06

RESULTS TO DATE

No samples were collected during the first quarter of this project. Thus there is no sample data yet. The CNEP spent the first quarter of this project making all necessary preparations for the commencement of sample collection (see the "First Quarter Goals, Objectives, and Accomplishments" section above).

Cherokee Nation Environmental Programs
Organizational Chart

Figure 2



Note: *Chart shows only those CNEP staff directly involved in the Community Air Toxics Project

ACTIVITIES PLANNED FOR SECOND QUARTER OF THIS PROJECT

1. The CNEP will send its five Restek 6-liter vacuum canisters to ERG to be cleaned and prepared for sample collection in mid-September, 2006. *This task was completed as scheduled and sample collection is set to begin as scheduled (see Activity 2 below).*

2. Initiate sample collection on September 26, 2006. The Proposed Sampling Schedule for this project is included as **Appendix A** of this quarterly technical report.

3. The CNEP will receive its backup RM910A sampler from RM Environmental, Inc. before the end of September, 2006. The CNEP will send its backup sampler to ERG for an EPA Compendium Method TO-15 "canister sampling system certification" (aka, NATTS Certification) in October, 2006. Subsequently, the CNEP will perform a flow verification check on the backup sampler.

4. ERG will begin reporting sample data to the CNEP within 45 days after the completion of the first month of sample collection. Thus the CNEP will receive the first sample data by mid-December, 2006.

5. The CNEP will complete the revision of its QAPP/Work Plan for this project in September, 2006 and submit it to EPA for approval. *This task was completed in late September, 2006.*

6. Kent Curtis of CNEP will attend the EPA Region 6 Quality Assurance Conference in Dallas on October 18, 2006. He will give a presentation on the CNEP's VOC screening project at Pryor in 2004-2005 and will discuss the initiation of this current Community Air Toxics Project.

7. Two or more CNEP air program personnel will attend the EPA's Air Toxics Meeting in Research Triangle Park, North Carolina on December 12-14, 2006.

PUBLICATIONS ARISING FROM THIS PROJECT

The CNEP will present the results of this project at one or more regional or national conferences as project data become available. Such presentations will not occur until 2007 or 2008. There are no plans at this time to publish the final results of this project.

The CNEP will share data from this project with the Cherokee Nation's Health Services department. The CNEP and the CN Health Services may jointly host a public meeting to present results of this project to residents of Cherokee Heights no later than the final month of the project (May, 2008).

APPENDIX A

PROPOSED SAMPLING SCHEDULE FOR THIS PROJECT

PROPOSED SAMPLE DATES FOR AIR TOXICS PROJECT AT PRYOR, 2006-2008

There are 92 sample dates, with duplicate samples being collected on 10 of those dates. There are 102 samples in all.
Sample dates correspond to the EPA's 1-in-6 day sampling schedule used for ambient particulate monitoring.
Dates for duplicate samples were selected randomly by using a random number table.

CNEP Sample Number	CNEP Canister Number	Lab Sample Number	Sample Date				Duplicate Sample	Notes
			Month	Day	Year	Day of Week		
1	2284	2284	September	26	2006	Tue		
2A	2275	2275	October	2	2006	Mon		
2B	2272	2272	October	2	2006	Mon	Yes	
3	2280	2280	October	8	2006	Sun		
4	2242	2242	October	14	2006	Sat		Non-CNEP Restek canister 2242
5	2276	2276	October	20	2006	Fri		
6			October	26	2006	Thur		
7			November	1	2006	Wed		
8A			November	7	2006	Tue		
8B			November	7	2006	Tue	Yes	
9			November	13	2006	Mon		
10			November	19	2006	Sun		
11			November	25	2006	Sat		
12			December	1	2006	Fri		
13			December	7	2006	Thur		
14			December	13	2006	Wed		
15			December	19	2006	Tue		
16			December	25	2006	Mon		Christmas
17			December	31	2006	Sun		New Year's Eve
18			January	6	2007	Sat		
19A			January	12	2007	Fri		
19B			January	12	2007	Fri	Yes	
20			January	18	2007	Thur		
21			January	24	2007	Wed		

PROPOSED SAMPLE DATES FOR AIR TOXICS PROJECT AT PRYOR, 2006-2008

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CNEP Sample Number	CNEP Canister Number	Lab Sample Number	Sample Date				Duplicate Sample	Notes
			Month	Day	Year	Day of Week		
22			January	30	2007	Tue		
23			February	5	2007	Mon		
24			February	11	2007	Sun		
25			February	17	2007	Sat		
26			February	23	2007	Fri		
27			March	1	2007	Thur		
28			March	7	2007	Wed		
29			March	13	2007	Tue		
30			March	19	2007	Mon		
31			March	25	2007	Sun		
32			March	31	2007	Sat		
33			April	6	2007	Fri		
34			April	12	2007	Thur		
35A			April	18	2007	Wed		
35B			April	18	2007	Wed	Yes	
36			April	24	2007	Tue		
37A			April	30	2007	Mon		
37B			April	30	2007	Mon	Yes	
38			May	6	2007	Sun		
39			May	12	2007	Sat		
40			May	18	2007	Fri		
41			May	24	2007	Thur		
42			May	30	2007	Wed		
43			June	5	2007	Tue		

PROPOSED SAMPLE DATES FOR AIR TOXICS PROJECT AT PRYOR, 2006-2008

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CNEP Sample Number	CNEP Canister Number	Lab Sample Number	Sample Date				Duplicate Sample	Notes
			Month	Day	Year	Day of Week		
44			June	11	2007	Mon		
45			June	17	2007	Sun		
46A			June	23	2007	Sat		
46B			June	23	2007	Sat	Yes	
47			June	29	2007	Fri		
48			July	5	2007	Thur		
49			July	11	2007	Wed		
50			July	17	2007	Tue		
51			July	23	2007	Mon		
52			July	29	2007	Sun		
53A			August	4	2007	Sat		
53B			August	4	2007	Sat	Yes	
54			August	10	2007	Fri		
55			August	16	2007	Thur		
56			August	22	2007	Wed		
57			August	28	2007	Tue		
58			September	3	2007	Mon		Labor Day
59			September	9	2007	Sun		
60			September	15	2007	Sat		
61			September	21	2007	Fri		
62			September	27	2007	Thur		
63A			October	3	2007	Wed		
63B			October	3	2007	Wed	Yes	
64			October	9	2007	Tue		

PROPOSED SAMPLE DATES FOR AIR TOXICS PROJECT AT PRYOR, 2006-2008

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Dates for duplicate samples were selected randomly by using a random number table.

CNEP Sample Number	CNEP Canister Number	Lab Sample Number	Sample Date				Duplicate Sample	Notes
			Month	Day	Year	Day of Week		
65			October	15	2007	Mon		
66			October	21	2007	Sun		
67			October	27	2007	Sat		
68			November	2	2007	Fri		
69			November	8	2007	Thur		
70			November	14	2007	Wed		
71			November	20	2007	Tue		
72			November	26	2007	Mon		
73			December	2	2007	Sun		
74			December	8	2007	Sat		
75			December	14	2007	Fri		
76			December	20	2007	Thur		
77			December	26	2007	Wed		
78			January	1	2008	Tue		NY Day
79			January	7	2008	Mon		
80A			January	13	2008	Sun		
80B			January	13	2008	Sun	Yes	
81			January	19	2008	Sat		
82			January	25	2008	Fri		
83			January	31	2008	Thur		
84			February	6	2008	Wed		
85			February	12	2008	Tue		
86			February	18	2008	Mon		
87			February	24	2008	Sun		

PROPOSED SAMPLE DATES FOR AIR TOXICS PROJECT AT PRYOR, 2006-2008

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CNEP Sample Number	CNEP Canister Number	Lab Sample Number	Sample Date				Duplicate Sample	Notes
			Month	Day	Year	Day of Week		
88			March	1	2008	Sat		
89			March	7	2008	Fri		
90A			March	13	2008	Thur		
90B			March	13	2008	Thur	Yes	
91			March	19	2008	Wed		
92			March	25	2008	Tue		